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In a sample of 559 fifth-grade students, measures were collected to assess: (1) dimensions of self-attribution for causes of academic outcomes; (2) multiple dimensions of self-concept; and (3) academic achievements. The empirically-derived dimensions of academic self-attribution replicated and extended results of previous research, but failed to support bipolar dimensions (e.g., internal-external, stable-unstable) found when characteristics of the attributional situation are manipulated. Overall, students who attribute academic success to ability (and to a lesser extent to effort) and who do not attribute failure to a lack of ability (and to a lesser extent not to a lack of effort) were found to have better academic self-concepts (based upon self-reports, and self-concepts inferred by peers and by teachers); and better academic achievement (based on test scores and teacher ratings). The specificity and the predictability of the observed pattern of relationships supports the construct validity of interpretations based upon both the self-attribution and self-concept instruments. (Author)

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Relationships Among Dimensions of Self-attribution, Dimensions of Self-concept and Academic Achievements

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ABSTRACT

In a sample of 559 fifth grade students measures were collected to assess: 1) dimensions of self-attribution for causes of academic outcomes; 2) multiple dimensions of self-concept; and, 3) academic achievements. The empirically derived dimensions of academic self-attribution replicated and extended results of previous research, but failed to support bipolar dimensions (e.g., internal-external, stable-unstable) found when characteristics of the attributional situation are manipulated. Overall, students who attribute academic success to ability (and to a lesser extent to effort) and who do NOT attribute failure to a lack of ability (and to a lesser extent not to a lack of effort) were found to have: 1) better academic self-concepts (based upon self-reports, and self-concepts inferred by peers and by teachers); and 2) better academic achievement (based on test scores and teacher ratings). The specificity and the predictability of the the observed pattern of relationships supports the construct validity of interpretations based upon both the self-attribution and self-concept instruments.

Relationships Among Dimensions of Self-attribution, Dimensions of Self-concept and Academic Achievements

Attribution researchers ask subjects for their perceptions of the cause of a particular outcome and examine the perceived causes (i.e., attributions) which people use to explain events. They argue that perceived causes of success and failure have important implications and these have been widely applied in educational settings. Individual differences in the way children attribute outcomes to such causes as ability, effort and luck are related to school performance, self-concept, and academic behaviors (Bar-Tal, 1978; Marsh, et al., 1984; Weiner, 1979). Nevertheless, self-attribution is a hypothetical construct whose usefulness must be shown through the demonstration of its construct validity.

In different experimental contexts, attribution researchers examine individual differences in the way subjects explain their own behavior in different settings (a dispositional or trait emphasis) and examine how systematic manipulations in the context alter attributions (a situational or state emphasis). In both types of study subjects are typically presented with stimuli depicting success or failure and asked to judge the likelihood of each of a series of possible causes for the outcome (e.g., ability, effort, luck, task difficulty). Dispositional studies ask subjects to make self-attributions about their own behavior, while situational studies typically ask for attributions about a hypothetical other person. Dispositional studies generally give subjects little information about the cause of the outcome in the stimulus, while stimuli in situational studies provide detailed information. For example, a subject in a dispositional study may be told only that he/she did poorly on a math test and asked to judge the likelihood of various causes, while subjects in a situational study may be told that a hypothetical other person did poorly and that the person is intelligent, that the test was easy, and that the person did not study very hard for it. In situational research components of the stimulus are systematically varied (e.g., the hypothetical person was or was not intelligent, the test was easy or difficult, etc.) and effects of these situational manipulations which generalize across subjects are sought. In dispositional research attributional tendencies in individual subjects which generalize across situations are sought. It is important to emphasize that neither approach is inherently superior and that the attribution process is affected by both situational and dispositional tendencies. Nevertheless, it is

clearly inappropriate to assume that findings from one approach will generalize to the other, though the mistake is common in attribution research (see Marsh, et al., 1984). The focus of this study is on the identification of dispositional tendencies in the way children form attributions about academic outcomes, and how these relate to other constructs.

The study of individual differences in self-attributions stems primarily from "locus of control" research (Rotter, 1966) where a generalized expectancy for the internal or external control of events is hypothesized. Marsh et al. (1984) have recently argued that such dispositional tendencies may be specific to particular content areas such as academic achievement or even to particular subject areas within an academic setting (e.g., verbal or mathematical achievement). Attribution theorists place more emphasis on different causes (e.g., ability, effort, luck, etc.) and stress the effects of situational variables which are experimentally manipulated. Thus, Weiner (1972, 1974) argued for a two-dimensional taxonomy where bipolar dimensions are locus (internal-external) and stability (stable-unstable). Hence, perceived causes can be classified into one of four types representing the 2 x 2 = 4 combinations of the endpoints of the two dimensions (e.g., ability is an internal, stable cause). While this earlier formulation has been the basis of most research, Weiner (1979, 1980) has more recently postulated a third dimension of controllability (controllable-uncontrollable), which results in eight cells or types of attribution (i.e., 2 x 2 x 2).

Weiner's model, which is based upon a logical analysis of the attribution process, has been quite heuristic, and a large body of empirical support for the model is summarized by Weiner (e.g., 1979, 1980). Despite this empirical support, many problems still remain (see Marsh, et al., 1984 for further discussion). Certain combinations appear to be mutually exclusive (e.g., external/controllable) so that some of the eight cells in the Weiner model may be empty. Weiner has not specified whether his theoretical dimensions are orthogonal, though this seems unlikely. The relationship between these dimensions and outcome (i.e., success or failure) has not been specified adequately. The measurement of attributions is typically conducted with ad hoc instruments with untested psychometric properties. The classification of causes (e.g., ability as internal/stable, and effort as internal/unstable) cannot be made independent of the particular attribution context (see Weiner, in

press). Most importantly for the present research, support comes almost entirely from situational research, and there is little research to test whether or not these theoretical dimensions also describe dispositional differences in the way subjects perceive causes of their own behavior. The dispositional-situational distinction is particularly confused here in that the term "dimensions" normally refers to factors which result from individual difference research.

Factor analytic studies of dispositional tendencies in the attribution process typically fail to support the theoretical dimensions found in situational research. Fennema (Fennema, Wolleat & Pedro, Note 1) and Relich (Note 2) independently developed self-attribution scales for performance in mathematics. Each was designed to measure four scales derived from Weiner's earlier model and considered outcomes representing both success and failure. The Relich study resulted in five clearly defined factors: 1) ability (where items representing ability attributions for success outcomes -- i.e., success/ability items -- and failure/ability items loaded in opposite directions); 2) success/effort; 3) failure/effort; 4) success/task difficulty and success/luck; and 5) failure task/difficulty and failure/luck. Factors identified in the Fennema data (see Marsh, et al., 1984) were consistent with these except that the two effort scales did not appear as separate factors. Marsh et al. (1984) designed a self-attribution instrument to measure the 18 scales representing the factorial combination of three facets; academic content (math, reading, and general school); outcome (success or failure); and perceived cause (ability, effort, and external causes). Factor analysis of responses to that instrument resulted in seven factors; three failure factors representing ability, effort and external causes, two success factors representing effort and external causes, and two content-specific factors representing primarily ability in math and ability in reading. This research led the authors to conclude that dispositional tendencies in the attribution process are specific to outcome, perceived cause, and content.

In self-concept research, a relationship between attributional tendencies and self-concept is frequently hypothesized, but the theoretical basis of this hypothesis is seldom elaborated. In a review of the theoretical and empirical basis for this relationship, Marsh et al. (1984) argued that a favorable self-concept was consistent with attributions to ability and effort as perceived causes of success, but not with a disposition to attribute failure to a lack of effort and particularly not to a lack of ability. On the basis of

this review and their empirical findings they concluded that academic self-concept is substantially correlated with success/ability and success/effort attributions (positively), and with failure/ability attributions (negatively), and less substantially correlated with failure effort attributions (negatively). Also, the magnitude of these correlations is largest when self-attributions and self-concepts involve the same area of academic content (e.g., reading or mathematics).

The Present Study.

The purpose of the present study is to replicate and expand findings from the Marsh et al. (1984) study. The findings are based upon a refined version of the Sydney Attribution Scale (SAS) used in the earlier research, a multidimensional self-concept measure, self-concepts inferred by peers and by teachers, achievement test scores in math and reading, and teacher ratings of student academic abilities. A 72-item revision of the SAS was used instead of the 180-item instrument employed in the earlier study. Dimensions underlying the self-attributions were examined with both conventional/exploratory factor analytic techniques considered earlier and also with confirmatory factor analyses. The addition of self-concepts inferred by teachers and by peers, as well as the self-report measure used previously, provides a stronger basis for examining the self-attribution/self-concept relationship. The collection of a wide variety of achievement scores in this study also allows the examination of relationships between self-attributions and academic achievement. On the basis of the literature review and empirical results from the earlier research it is predicted that:

1) Self-attribution responses to the SAS will define seven factors corresponding to: reading ability; math ability; success/effort; success/external causes; failure/ability; failure/effort; and failure/external causes.

2) Academic self-concepts will be substantially correlated with success/ability and success/effort attributions (positively), with failure/ability attributions (negatively), less substantially correlated with failure/effort attributions (negatively), and least correlated with success/external and failure/external scales. The magnitude of correlations which are predicted to be substantial will be largest when both self-concept and self-attribution measures are specific to the same academic subject (i.e., reading or math). This pattern of results is also predicted to generalize to self-concepts inferred by teachers and by peers.

3) Academic achievement scores will be most highly correlated with success/ability (positively) and failure/ability (negatively) scales, and less substantially correlated with effort scales. Again, the magnitude of correlations predicted to be substantial will be largest when achievement and self-attributions are specific to the same academic subject.

These predictions emphasize both the convergence of measures which are theoretically or logically connected, and divergence of

measures which are designed to measure separate components. Thus the pattern of results is as important as the actual magnitude of correlations, and follows an approach to construct validity which is based upon the logic of multitrait-multimethod analysis (see Marsh, 1982; Marsh, et al., 1984).

METHOD.

Sample and Procedures.

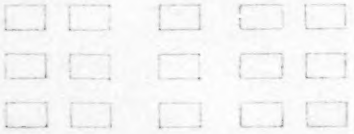
Subjects were were the 559 fifth grade students (mostly 10 year olds) enrolled in 19 fifth grade classes in one of seven private Catholic schools in Sydney, Australia. Most of the students attended single-sex classes (18 of the 19 classes). Children in the sample came from families which varied in socioeconomic status from lower-middle to upper-middle class. Across all the children in the study, academic abilities were about average. Data considered are part of a larger project which is described in more detail by Marsh, Smith & Barnes (Note 3).

The self-concept and self-attribution measures were administered by one of the authors to intact classes of no more than 34 students. For both self-report instruments several practice examples were given along with instructions to ensure that pupils understood what was expected of them, and then the items were read aloud at a fairly rapid pace (though children had copies of the instruments in front of them and could read along with the researcher). After students had completed the self-concept instrument, they were asked to write their name on a second copy of the SDQ and to exchange papers with a pupil sitting beside them. They were then asked to take the new survey to a different desk so that they were sitting besides a different pupil and to complete the survey as if they were the pupil whose name was on the paper. Thus, the task of the peer was to "predict" the responses made by the subject. Care was taken to ensure that the subject and the selected peer did not discuss the subject's responses. While the various instruments were being administered to the students, the classroom teacher was asked to complete a rating sheet about each child which included ability ratings for reading, math, and school subjects in general, and inferred self-concept ratings in the same scales as assessed by the self-concept instrument. Teacher ratings were made with a nine-point response scale varying from "1 - very poor" to "9 - very good." Some teachers were unable to complete the ratings until later, and one teacher declined to complete the forms at all.

The achievement tests were distributed to the schools by the researchers, but were actually administered by the classroom teachers during a regular class session before the administration of the self-report measures. These tests were then scored by the researchers with the understanding that feedback would be given to the schools. Two of the schools declined to participate in the achievement testing, though they did agree to the administration of the self-report measures and to complete teacher ratings.

Testing Materials.

Sydney Attribution Scale (SAS). The purpose of the SAS is to measure students perceptions of causes of their academic success and failure. The revised version used in this study is designed to measure 12 scales which result from the factorial combination of three facets: academic content (M=math or R=reading); outcome (S=success or F=failure); and perceived cause (A=ability, E=effort, or X=external causes). Thus RSA or reading/success/ability refers to the scale represented by items which measure attributions to ability as the cause of success in reading. Each of the 12 scales is measured by 6 of the 72 items. The instrument consists of 24 brief scenarios describing a situation in which the student is to suppose him/herself in a situation representing an academic success or failure. With each scenario are three, randomly ordered, plausible causes for the outcome and students make independent ratings of each cause along a five-point response scale which varies from "1-False" to "5-True." The rationale for the design of the SAS is described by Marsh, et al. (1984). The revised version differs from that earlier version in that six items (instead of 10) were selected to represent each scale, and the six scales relating to "school subjects in general" were excluded. An example of one of the scenarios and the three causes is as follows:



A preliminary item analysis of responses to the SAS (conducted with the commercially available SPSS program, see Hull & Nie, 1981) indicated that none of the SAS items in any of the 12 scales was a negative discriminator, and that 67 of the 72 items had "corrected item-total correlations" (see Hull & Nie, 1981) of at least 0.30. Coefficient alphas for the six success scales (0.69 to 0.84 -- median

= 0.82) were generally higher than for the six failure scales (0.5[illegible] to 0.75 -- median = 0.66). For purposes of this study, based upon results described later and the results of Marsh et al. (1984), eight scores were used to summarize responses to the SAS. Six of these scores (success/ability, success/effort, success/external, failure/ability, failure/effort, and failure/external) were obtained by summing responses to reading and math items, while the two content specific factors were defined only by reading items or only by math items (these scores and their empirical support are discussed later in more detail). These eight scores had coefficient alphas ranging from 0.70 to 0.86 (median = 0.83) and only the score representing attributions to external causes for failure outcomes had an alpha less than 0.80. Thus, despite the considerable reduction in the length of the SAS, the scores used in the analysis are reasonably reliable.

Self-concept Measures. The Self Description Questionnaire (SDQ) measures seven components of preadolescent self-concept derived from Shavelson's model (Shavelson, Hubner & Stanton, 1976; Marsh & Shavelson, Note 4). These consist of self-concepts in four nonacademic areas (Physical Ability, Physical Appearance, Peer Relationships, and Parent Relationships) and three academic areas (Reading, Math and General School). A description of the seven-scale instrument, its theoretical rationale, the wording of the items, reliabilities and six separate factor analyses are presented elsewhere (Marsh, Barnes, Cairns & Tidman, in press; Marsh, Parker & Smith, 1983; Marsh, Relich & Smith, 1983; Marsh, Smith & Barnes, 1983). This research has shown the seven SDQ scales to be reliable (coefficient alpha's in the 0.80's and 0.90's), moderately correlated with measures of corresponding academic abilities (r's from .3 to .7), and in agreement with self-concepts inferred by primary school teachers.

In the current version of the SDQ an eighth component of General-Self (which is similar to the self-esteem scale described by Rosenberg, 1965) has been added. Coefficient alpha's for the eight SDQ scales in this study varied between 0.79 and 0.91 (median = 0.87). Total scores representing the sum of the four nonacademic scales (Tot NACD) and the sum of the three academic scales (Tot ACD) each had coefficient alphas of 0.91. The results of conventional/ exploratory factor analyses and confirmatory factor analyses of responses to the SDQ for this data provide strong support for the eight factors which this version of the SDQ is designed to measure. Furthermore, similar analyses of the inferred self-concepts completed by the peers in the present study also identify the eight factors.

The results of these analyses are presented elsewhere (Marsh, Note 5; Marsh, Smith & Barnes, Note 3).

Factor score coefficients (see Nie, et al., 1975) were determined as part of the oblique factor analysis of the responses to the SDQ, and were used to compute factor scores to represent the eight SDQ factors. The same set of factor score coefficients was also used to compute inferred self-concept scores for the peer responses. Teachers responded to eight summary ratings designed to represent each of the eight SDQ factors and these ratings served as indicators of self-concepts as inferred by teachers. Agreement between student self-concepts, self-concepts inferred by peers, and self-concepts inferred by teachers is significant, though modest, and is specific to particular dimensions of self-concept. This multitrait-multimethod analysis is described elsewhere in greater detail (Marsh, Smith & Barnes, Note 3).

Achievement Measures. Reading achievement was assessed with the comprehension and word knowledge sections of the Primary Reading Survey Tests (ACER, 1976). The word knowledge section consists of 40 multiple choice synonym items and takes 20 minutes to administer, while the comprehension section consists of 34 multiple-choice items and takes 30 minutes to administer. Scores from the two sections had split-half reliabilities of 0.87 and 0.92 respectively, and correlated 0.73 with each other. For purposes of this study scores from each of the two sections were standardized to have mean = 0.0 and SD = 1.0, and then summed to form a total score. Mathematics achievement was assessed with the Class Achievement Test in Mathematics (CATIM 4/5) examination which is based upon an "Australian average" syllabus (ACER, 1979). This math tests consists of 45 multiple-choice items and takes about 45 minutes to complete. The split-half reliability of this score was 0.96. Teacher ratings of ability in reading, mathematics, and school subjects in general were also taken to be indicators of academic achievement.

Statistical Analyses.

There were almost no missing responses to either the SAS or the SDQ (less than 1/4 of 1%), and the mean response was substituted for the few missing values which did occur. However, for the teacher ratings of academic ability there were 36 missing cases (6%), representing primarily students from one class where the teacher did not complete the ratings, and 142 missing values (25%) for the achievement tests, representing primarily students from two schools

which did not administer the achievement tests. For purposes of this study pair-wise deletion of missing data was used in the determination of the correlations (see Nie, et al., 1975). However, similar correlations based upon only those cases which had no missing data were nearly the same as those actually reported. Thus, while the large number of missing values for the achievement measures does require that the results be interpreted cautiously, it is unlikely to have had any substantial effect.

For purposes of this study the six items from each of the 12 SAS scales were divided into three item-pairs such that the first two items were assigned to the first pair, the next two items to the next pair, and the last two items to the third item-pair. Factor analyses were performed on responses to these 36 item-pairs representing the 72 items. First, conventional/exploratory factor analyses were performed with the commercially available SPSS program (Nie, et al., 1975) using iterated communality estimates, a Kaiser normalization, and an oblique rotation to the final solution. Confirmatory factor analyses (CFA) were also conducted with the commercially available LISREL V program (Joreskog & Sorbom, 1981). In the CFA models we hypothesized solutions based upon different numbers of factors where the factors are correlated but the error/uniqueness terms for the measured variables are uncorrelated. The ability of the proposed models to fit responses to the SAS was determined by an examination of the parameter estimates, the ratio of the chi-square to the degrees of freedom, coefficient d (Bentler & Bonett, 1981), and the root mean square residual which is based upon differences between the original and reproduced correlation matrices (Joreskog & Sorbom, 1981). A more detailed presentation of confirmatory factor analysis and how goodness-of-fit is evaluated is beyond the scope of this paper, but is discussed elsewhere (Bentler & Bonett, 1981; Joreskog & Sorbom, 1981; Marsh & Hocevar, 1983; in press; Maruyama & McGarvey, 1980; Wolfle, 1981).

RESULTS.

Factor Analyses of Responses to the SAS.

Results of the conventional/exploratory factor analysis of responses to the SAS clearly identify the seven factors hypothesized from the results of the Marsh et al. (1984) study. The success/effort, success/external, failure/ability, failure/effort, and failure/external factors are each defined by items representing both reading and mathematics, while the reading and math factors are content specific. Both the reading and math factors are defined

primarily by success/ability items (which load positively), and to a lesser extent by failure/ability items (which load negatively) and success/effort items (which load positively).

Insert Table 1 About Here

The ability of plausible, alternative models to fit the data was tested with confirmatory factor analysis (see Table 2). Though several different indicators of "goodness-of-fit" are presented, we emphasize coefficient d in our discussion. Coefficient d scales the observed chi-square along a scale of zero to 1.0 where zero represents the fit of a null model while 1.0 represents a perfect fit. The logic of this coefficient is similar to that developed for ANOVA models where the ratio of two variance components (e.g., eta squared) is used to infer the proportion of variance explained by an effect. However, the conclusions discussed below also follow from an inspection of each of the other goodness-of-fit indicators.

Insert Table 2 About Here

The one-factor model (model 1) tests the ability of a single response tendency (i.e., the internal-external dimension proposed in "locus of control" research) to describe responses, but it clearly must be rejected. The two-factor model (model 2) proposes separate factors to account for responses to success and failure outcomes. While its ability to fit the data is substantially better than model 1 (.48 vs. .34) it also must be rejected. The three-factor model (model 3) proposes factors corresponding to each of the three causes (ability, effort, and external causes). Model 3 does not even do as well as model 2, so it is also rejected. The six-factor solution (Model 4), a combination of models 2 & 3, proposes separate factors representing each cause separately for success and failure outcomes. This model proposes that attributions are specific to outcome and cause, but are not specific to content area. Model 4 represents a substantial improvement over the first three models, but still does not fit the data adequately.

Models 5 - 9 each propose seven-factor solutions similar to that depicted in Table 1, but differ in the way that the reading and the math factors are defined (see Table 2). In model 5 the reading and the math factor are each defined by success/ability and success/failure items; in model 6 the success/effort items also are allowed to load on the content specific factors; and so forth so that for model 9 the reading factor is defined by all the reading items and

the math factor is defined by all the math items. Even the weakest of the seven-factor solutions (model 5) represents a substantial improvement over the six-factor solution (.78 vs. 0.66). While the differences between the models are statistically significant in each case except the difference between models 8 & 9 , the differences are not large. For example the difference in coefficient d's for models 5 and 9 (0.78 vs. 0.82) is less than half of the difference between models 5 and 4 (0.78 vs. 0.66). Model 5 corresponds most closely with our characterization of the reading and math specific factors as ability factors. Model 6 appears to correspond most closely to the results of the conventional/exploratory model shown in Table 1. Models 7 & 8 each represent marginal improvements, while model 9 does no better than model 8 (i.e., does not differ significantly from it) and can be eliminated from further consideration.

Model 10 proposes that each of the 12 SAS scales represents a separate factor. The ability of this model to fit the data differs little from the seven-factor solutions. Furthermore, the model is ill-defined in that two of the correlations among the 12 factors are greater than 1.0 and others approach 1.0, suggesting that the model is over-defined. We reject this model on these bases.

In the seven-factor models (models 5 - 9), the highest loadings on the reading and on the math factors occur for the success/ability and to a lesser extent the failure/ability items. Inspection of the parameter estimates for model 6 indicates that factor loadings for the success/effort items are much smaller than for the success/ability and failure/ability items. Also,in models 7, 8 and 9, while loadings for the failure/effort and success/external items are statistically significant and in the expected direction, the magnitude of the loadings is quite small. In model 9, the loadings for the failure/external items generally do not even reach statistical significance and this accounts for why model 9 fits the data no better than model 8. Hence, these analyses not only support the necessity of seven factors to explain the data, but also support our characterization of the two content-specific factors as ability factors. Thus, we prefer to define the content specific factors with the ability items (as in model 5), even though model 8 received stronger empirical support. In subsequent analyses, the reading and math attribution scores as depicted in both models 5 and 8 will be considered (see Table 3).

In summary, the results of both conventional/exploratory and

confirmatory factor analyses support the seven attribution factors hypothesized to underlie responses to the SAS. These results demonstrate that attributional dispositions are quite specific to outcome and cause, and to a lesser extent to content area (at least for ability attributions). Here, as in Marsh et al. (1984), the content specificity occurs primarily with attributions of ability.

Relationship to External Criteria.

Self-concept. Correlations between the responses to the SDQ and the SAS (see Table 3) support the predicted relationships. The three academic self-concepts, and their total, are substantially correlated with success/ability and success/effort scales (positively) and with the failure/ability scale (negatively), less substantially correlated with the failure/effort scale (negatively), and nearly uncorrelated with the two external scales. The four nonacademic self-concepts, and their total, are less correlated with the SAS scores. The largest correlations between the self-concept and self-attribution scores, also as predicted, occur between the two reading specific scores and between the two math specific scores. These correlations are substantially larger than the other coefficients, and clearly support the content specificity of both self-concept and self-attributions.

Insert Table 3 About Here

In addition to the self-concepts based upon the student's own self-reports, self-concepts inferred from responses by teachers and by responses from peers were also collected. The size of the correlations between self-attributions and inferred self-concepts are consistently lower than those described above, but the pattern of results is very similar (see Table 3). This similarity is quite important, because it demonstrates that the predicted pattern of relationships between self-concept and self-attribution is not limited to results based upon two self-report instruments completed by the same person. Alternative explanations for the self-concept/self-attribution relationships which are based upon a response bias or method/halo effect no longer seem viable when self-concepts are inferred by external observers.

Achievement Scores. The pattern of correlations between achievement indicators and self-attributions supports the predictions and the findings generalize across results from both achievement tests and teacher ratings of academic ability. Reading achievement indicators are most highly correlated with self-attributions in reading/ability, positively correlated with ability/success

attributions, negatively correlated with ability/failure attributions, and less substantially correlated with the effort scales. Math achievement indicators are most highly correlated with self-attributions in math/ability, positively correlated with ability/success attributions, negatively correlated with ability/failure attributions, and less substantially correlated with the effort scales.

Predictions were not made for correlations between the achievement scores and the external attributions. Intuitively, we suspected success/external attributions would have zero-to-low-negative correlations with achievement (i.e., saying "True" to causes such as luck, task difficulty, etc. would be related to poorer achievement) while correlations with failure/external attributions would be zero-to-low-positive. Marsh et al. (1984) only considered one achievement indicator -- a reading achievement test -- which was not emphasized in their results. The sign of the observed correlations in the earlier research was in the predicted direction and the external/failure scales did have near-zero correlations with achievement, but the success/external correlations were quite substantial. Though less pronounced, this asymmetry in the pattern of correlations occurs in the present investigation as well. Failure/external attributions are virtually uncorrelated with achievement indicators, while success/external attributions are significantly (negatively) correlated with achievement indicators. Nevertheless, the replication of this pattern of result suggests the need for further investigation.

Summary & Discussion

The purpose of this study was to replicate and expand findings by Marsh et al. (1984), and strong support was demonstrated for a detailed set of predictions based upon the earlier research. Seven factors were hypothesized to underlie self-attribution responses to the SAS. Conventional/exploratory factor analyses identified these factors. Confirmatory factor analyses demonstrated that the seven-factor solution provided a reasonable fit to the data, while other plausible models did not. The pattern of correlations between self-attributions and self-concepts found previously was replicated, and a similar pattern was identified when self-concepts were inferred from responses by teachers and from responses by peers. Support for the predicted pattern of self-attribution/academic achievement relationships was found, and a similar pattern was observed with both

academic test scores and teacher ratings of academic ability. In general, students who attribute their academic success to their own ability and, to a lesser extent, their own effort tend to have better academic skills and higher academic self-concepts. Students who attribute their academic failures to their lack of ability and, to a lesser extent, to their lack of effort tend to have poorer academic skills and lower academic self-concepts. Academic self-attributions and academic self-concepts are also specific to particular content areas so that attributions in verbal areas do not generalize to those about math outcomes.

In their review of the theoretical and empirical basis of the self-concept/self-attribution relationship, Marsh et al. (1984) found a consensus of support for the hypothesis that academic self-concept is most positively correlated to success/ability attributions and most negatively correlated with failure/ability attributions. However, there was considerable controversy about the relationship between academic self-concept and effort attributions. Some theoretical accounts argued that academic self-concept should be negatively correlated with success/effort attributions and positively correlated with failure/effort attributions (e.g., Nichols, 1979), other researchers argued for exactly the opposite pattern (e.g., Bar-Tal, 1978), a few argued for an asymmetry in the pattern of correlations (e.g., Covington & Omelich, 1979), and most did not make explicit predictions. Marsh et al. (1984) predicted, that academic self-concept would be substantially correlated (positively) with success/effort attributions and less substantially correlated (negatively) with failure/effort attributions, and demonstrated empirical support for the prediction. This asymmetry was demonstrated again here. For example, total academic self-concept (Tot ACD in Table 3) correlates 0.52, 0.47 and -0.45 with success/ability, success/effort, and failure/ability, but only -0.30 with failure/effort (which is significantly smaller than each of the other correlations, $p < .001$). The same pattern of results is observed in self-concepts inferred by peers, but not in self-concepts inferred by teachers. We suspect that when teachers are asked to infer academic self-concepts, their ratings are more strongly influenced by objectively defined academic ability than are the students' actual self-concepts, and this may explain why the pattern of results differs somewhat for them.

Marsh et. al. (1984) did not emphasize the self-attribution/academic achievement relationship. However, based upon

that study we predicted that ability attributions would be more highly correlated with ability than with effort attributions and we intentionally avoided making predictions about external attributions). The predictions were supported, though it is interesting to note that failure/ability attributions are more substantially correlated (negatively -- mult R = 0.41) than success/ability attributions (positively -- mult R = 0.32), though no asymmetry was found in correlations with the effort attributions which were smaller (mult R's = 0.19 & 0.22). Apparently, attributions of effort are related more strongly to academic self-concept (particularly when the outcome is a success) than to academic achievement. This pattern is intuitively logical, is similar to findings from Marsh, et al. (1984), and also is consistent with the speculations offered by Covington & Omelich (1979). The findings also may explain why the self-attribution/self-concept relationship is more like the self-attribution/academic achievement relationship when self-concepts are inferred from teacher ratings.

Results described here and in Marsh, et al. (1984) argue that attributions are quite specific to outcome and the type of cause, and to a lesser extent the area of academic content. The content specificity of the attributions is quite clear for ability attributions, but not for attributions to effort and external causes. Our interpretation of these results is that students see their ability in verbal and mathematical areas as reasonably distinct, while they perceive that the amount of effort which they put into different subject areas as more similar. Weiner (in press) makes a similar point based upon findings by Foersterling & Engelken (1981) and his further research. He suggests that ability in physics provides no information about ability in German, but that trying hard in physics is predictive of trying hard in German. The content specificity of the attributions will also depend upon the similarity of the two content areas, and may not be so apparent for similar subjects (e.g., physics and mathematics).

Our emphasis here, and in Marsh et al. (1984) has been on ability and effort attributions, and not on attributions to external causes. The decision to combine a myriad of external causes into a single scale was partially pragmatic in an attempt to keep the length of the SAS reasonable, but was also based upon results from the Fennema study and particularly the Relich study discussed earlier. However, several anomalies make us uncomfortable with this decision. First, the

internal consistency of responses to failure/external items (0.70) is substantially lower than for the success/external scale (0.83) or any of the other scales (0.80 to 0.86). Secondly, our intuition and other theoretical accounts suggest that the tendency to externalize attributions should be negatively correlated for success and for failure outcomes, but the observed correlations are statistically significant and positive. Third, attributing success to external causes is substantially correlated with academic achievement (negatively), while attributing failure to external causes is nearly uncorrelated with achievement. Only for the self-concept/self-attribution relationship did the two scales perform similarly in that each was nearly uncorrelated with academic self-concept. Even here, however, we expected the correlations to have the opposite sign (for the same reason that we expected the scales to be negatively correlated), but they did not.

We have no explanation for the anomalies which occur with the two external scales, but the consistency of their occurrence across the two studies argues that they require further research. Several observations may provide some clues. Success/ability and success/effort scales are substantially correlated with each other, but nearly uncorrelated with success/external. Failure/ability and failure/effort scales are substantially correlated with each other and postively correlated with the failure/external scale. This means that children who are unwilling to attribute failure to a lack of ability and effort are also unwilling to attribute it to external causes. This paradoxical finding may be related to the Ickes & Layden (1978) finding that students with high self-concepts judged all causes of failure to be unlikely. The self-serving bias where self-attributions for success are more "internal" than for attributions to failure (see Marsh, et al., 1984) may play a role. Finally, it would be important to determine if the anomalies are consistent across different types of external causes (e.g., luck, task difficulty, health, environmental influences, other people -- teachers, parents, etc.).

We have intentionally not attempted to make causal inferences about the relationships among self-attributions, self-concepts, and academic abilities for a variety of reasons. First, the nature of this study and state the of attribution research do not warrant this level of theorizing. Instead, our emphasis has been on the development of reliable and valid measurement procedures, and on the validation of the self-attribution construct. Without this level of

basic understanding of the self-attribution process, further research is likely to be unproductive. Second, the cross-sectional and correlational design of this study make it unlikely that alternative causal models -- or even causal predominance -- could be validly tested. Finally, we feel that the variables in question are interwoven in a network of reciprocal relationships such that a change in academic self-concept, academic ability, or academic attributions is likely to "cause" a change in the others. If this is the case, the search for which variables cause what is likely to be counter-productive, even if longitudinal and experimental data were available and appropriate statistical techniques were developed. Instead, we see the three sets of variables as forming a dynamic equilibrium such that if any one is changed or inconsistent with the others, there must be a change in the balance among them in order to reestablish the equilibrium.

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TABLE 1

Summary of Conventional/exploratory Factor Analysis of Responses to the SDQ I

Oblique Factor Pattern Matrix

Variables	Read Abil	Math Abil	Succ Efft	Succ Extr	Fail Abil	Fail Efft	Fail Extr
RSAP1	67	10	17	-06	-06	04	-01
RSAP2	73	08	13	-12	-05	03	-03
RSAP3	80	19	-02	02	-06	-01	01
RSEP1	26	-03	62	-15	05	-08	03
RSEP2	35	16	49	00	13	-10	-01
RSEP3	11	06	6'	09	09	03	-07
RSXP1	-14	05	-18	53	14	-07	04
RSXP2	-11	09	-04	69	-02	08	10
RSXP3	-10	02	07	69	08	04	01
MSAP1	08	73	03	-09	01	01	03
MSAP2	10	78	08	-14	-01	08	01
MSAP3	20	74	04	04	05	-04	11
MSEP1	-03	39	25	04	-20	03	-02
MSEP2	01	28	47	04	-10	02	06
MSEP3	10	49	30	06	-07	01	10
MSXP1	07	-16	07	53	01	04	07
MSXP2	05	-02	-03	72	-04	00	02
MSXP3	00	-05	04	64	-02	05	10
RFAP1	-35	13	01	04	53	17	-04
RFAP2	-35	18	-05	00	55	15	-04
RFAP3	-36	12	13	04	46	33	-08
RFEP1	-05	04	-04	-03	15	53	-02
RFEP2	-05	15	-18	02	14	54	09
RFEP3	-26	08	04	15	12	57	-03
RFXP1	-08	03	15	-01	12	-05	49
RFXP2	03	02	-13	14	10	-07	55
RFXP3	03	07	-16	07	-16	-02	62
MFAP1	08	-32	-05	05	55	10	10
MFAP2	10	-30	05	10	57	09	04
MFAP3	13	-33	-06	13	45	17	01
MFEP1	13	10	-35	05	40	30	03
MFEP2	06	-01	-02	03	-05	68	01
MFEP3	06	-25	14	12	12	52	03
MFXP1	04	-08	12	-10	25	24	29
MFXP2	08	07	-09	17	04	-15	64
MFXP3	-03	-04	12	-03	-10	17	52

Factor Pattern Correlations

	Read Abil	Math Abil	Succ Efft	Succ Extr	Fail Abil	Fail Efft	Fail Extr
Read Abil	100						
Math Abil	10	100					
Succ Efft	29	25	100				
Succ Extr	-12	-08	-07	100			
Fail Abil	-18	-18	-07	14	100		
Fail Efft	-15	-02	00	11	47	100	
Fail Extr	06	06	02	22	08	11	100

Note: Measured variables are the three item pairs (P1, P2 & P3) which represent each of the 12 SAS scales. The scales are designated with a combination of three letters representing content (R=reading or M=math), outcome (S=success or F=failure), and cause (A=ability, E=effort, X=external).

TABLE 2
Summaries of Goodness of Fit Indices for the CFA Models Describing Responses to the SAS

Model Description	chi square	df	chi-sq/ df ratio	RMS	Coeff d
0) Null Model	8,798	630	13.96	.222	----
1) One "General" factor	5,814	594	9.79	.136	.339
2) Success (S) & Failure (F) factors	4,563	593	7.69	.118	.481
3) Ability (A), Effort (E), and External (X) factors	4,828	591	8.17	.123	.451
4) SA, SE, SX, FA, FE, FX Factors	2,958	579	5.11	.089	.664
5) SE, SX, FA, FE, FX Factors plus Reading & Math factors defined by SA & FA items	1,955	567	3.45	.073	.778
6) As in model 5 with Reading & Math factors defined by SA, FA & SE items	1,726	561	3.08	.067	.804
7) As Model 5 with Reading & Math factors defined by SA, SE, FA & FE items	1,631	555	2.94	.064	.815
8) As Model 5 with Reading & Math factors defined by SA, SE, SX, FA & FE items	1,562	549	2.85	.061	.822
9) As Model 5 with Reading & Math factors defined by SA, SE, SX, FA, FE & FX items	1,554	543	2.86	.060	.823
10) RSA, RSE, RSX, MSA, MSE, MSX, RFA, RFE, RFX, MFA, MFE & MFX factors	1,485	528	2.81	.061	.831

Note: Model 10 was ill-defined in that two of the correlations among the factors exceeded 1.0.

TABLE 3
Correlations Between SAS Scales and Criterion Scores

Criterion Variables	SAS Scale Scores[a] Read Abil	Math Abil	Read Abl'	Math Abl'	Succ Abil	Succ Efft	Succ Extr	Fail Abil	Fail Efft	Fail Extr
Student Self-Concepts										
Phys Appr	16	20	20	21	21	28	-04	-15	-14	-01
Phys Abil	08	15	10	18	13	16	-07	-10	-09	-04
Peers	17	15	15	15	17	23	-01	-15	-06	-07
Parents	05	09	09	11	06	19	-04	-09	-06	-10
To NACD	17	22	20	25	21	32	-05	-18	-13	-08
Reading	62	13	57	19	37	23	-19	-38	-28	-04
Math	09	59	13	52	38	40	-06	-30	-15	-06
School	24	41	29	40	38	38	-10	-28	-21	-13
Tot ACD	44	52	45	51	52	47	-16	-45	-30	-11
General	35	42	36	41	43	41	-13	-35	-20	-02
Self-concepts Inferred by Peers										
Phys Appr	-10	-06	-06	-04	-08	04	00	08	05	-07
Phys Abil	01	00	02	03	-02	03	-05	-03	00	-07
Peers	-01	00	00	02	-04	03	-03	-03	00	02
Parent	01	01	05	03	02	15	01	-01	-03	-04
Tot NACD	-03	-02	01	01	-04	09	-02	01	01	-05
Reading	28	16	27	18	19	14	-15	-23	-13	-05
Math	14	32	13	27	27	32	-10	-19	00	-02
School	13	22	14	22	21	20	-10	-15	-03	-05
Tot ACD	21	27	21	26	26	22	-14	-22	-07	-05
General	03	00	05	02	-02	07	-07	-05	01	-04
Self-concepts Inferred by Teachers										
Phys Appr	08	11	11	12	03	02	-12	-15	-09	-03
Phys Abil	08	19	10	20	15	12	-16	-13	-01	-01
Peers	02	08	07	10	01	01	-13	-03	-05	-09
Parent	08	06	13	05	04	05	-11	-09	-04	-03
Tot NACD	09	14	15	16	08	08	-18	-15	-07	-08
Reading	33	24	36	25	23	12	-26	-32	-20	00
Math	24	38	27	38	26	18	-26	-34	-19	-06
School	20	32	31	33	25	16	-26	-34	-18	-04
Tot ACD	30	34	34	35	27	17	-28	-36	-21	-04
General	12	24	24	26	16	09	-21	-28	-17	-03
Achievement Test Scores										
Reading	41	25	37	25	27	01	-25	-38	-21	06
Math	20	33	20	33	22	09	-24	-30	-12	06
Teacher Ability Ratings										
Reading	35	24	36	26	26	11	-29	-33	-17	02
Math	22	38	25	38	28	16	-28	-32	-14	-01
School	29	34	32	34	28	15	-29	-35	-16	-03
Multiple R's Based on five Achievement Indicators										
Mult R	44	42	41	41	32	19	32	41	22	12

a - Two variations of the reading and math scales for the SAS were considered, where Read Abil = RSA - RFA, Math Abil = MSA - MFA, Read Abl' = RSA + RSE - RSX - RFA - RFE, and Math Abl' = MSA + MSE - MSX - MFA - MFE. These correspond most closely to factors defined in models 5 and 9 in Table 2, though scores corresponding to the other models resulted in similar correlations.

NOTE: Coefficients are presented without decimal points. Correlations with an absolute value greater than .12 are statistically significant ($p < .01$, two-tailed).

Name _____ Boy ____ Girl ____ Grade/Year _____

Age _____ School _____ Teacher _____

S.A.S. SYDNEY ATTRIBUTION SCALE

This is not a test. There are no right or wrong answers. There are a number of things listed that could happen in school or at home - you are asked to show how true or false each reason for this happening is for you.

Look at the first example. Someone called Terry has filled this one in.

	False	Mostly False	Sometimes True Sometimes False	Mostly True	True	
1. Suppose you won a race at the Sports Carnival. It would probably be because						
a you were just lucky	☐	☐	☐	☐	☐	a
b you are a good runner	☐	☐	☐	☐	☐	b
c you tried hard to run fast	☐	☐	☐	☐	☐	c

(Terry put a tick in the False box for the first reason because for Terry that reason was not true at all. Terry put a tick in the True box for the second reason because Terry is a very good runner and always wins races. Terry put a tick in the Mostly True box for the last reason because Terry did try pretty hard to run fast and it was mostly true).

Now let's look at the second example. Someone named Chris has filled this one in.

2. Suppose that you painted a picture at school and everyone said it was terrible. It would probably be because						
a you are a bad painter	☐	☐	☐	☐	☐	a
b you only tried a little	☐	☐	☐	☐	☐	b
c they did not like you	☐	☐	☐	☐	☐	c

(Chris has ticked Sometimes True, Sometimes False for the first reason because Chris is only a bad painter sometimes. Chris has ticked Mostly True for the second reason because Chris tried only a little on most of the painting. Chris ticked Mostly True on the last reason because it is mostly true that everyone in the class does not like Chris and would have said the painting was terrible for that reason).

NOW YOU TRY THESE EXAMPLES

3. Suppose that you made a model and it fell to pieces as soon as you finished it. It would probably be because						
a you are not good at making models	☐	☐	☐	☐	☐	a
b you did not work carefully on it	☐	☐	☐	☐	☐	b
c the glue was bad	☐	☐	☐	☐	☐	c
4. Suppose that you wrote a story that the teacher said was very good. It would probably be because						
a you write good stories	☐	☐	☐	☐	☐	a
b you tried very hard	☐	☐	☐	☐	☐	b
c the teacher likes you	☐	☐	☐	☐	☐	c

DO NOT TALK TO ANYONE ABOUT YOUR ANSWERS OR LOOK AT ANYONE ELSE'S PAPER.

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	False	Mostly False	Sometimes True Sometimes False	Mostly True	True	
1. Suppose your teacher chose you to be in the top reading group in your class. It would probably be because						
a you are good at reading	☐	☐	☐	☐	☐	a
b you work hard at reading	☐	☐	☐	☐	☐	b
c the teacher made a mistake	☐	☐	☐	☐	☐	c
2. Suppose you have to swap books with someone to correct some maths exercises and no one wants to give you their book. This is probably because						
a nobody likes you very much	☐	☐	☐	☐	☐	a
b you are careless in your work and with corrections	☐	☐	☐	☐	☐	b
c everyone knows you do maths badly	☐	☐	☐	☐	☐	c
3. Suppose you had trouble trying to answer the teacher's question about a story in reading lesson. It is probably because						
a the story was too hard for everyone	☐	☐	☐	☐	☐	a
b you are a poor reader	☐	☐	☐	☐	☐	b
c you should have read it more carefully	☐	☐	☐	☐	☐	c
4. Suppose the teacher wanted you to help correct some maths tests. This is probably because						
a you are one of the best students in maths	☐	☐	☐	☐	☐	a
b it was your turn to do it	☐	☐	☐	☐	☐	b
c you always try to do well at maths	☐	☐	☐	☐	☐	c
5. Suppose the school librarian wants someone to help count books and you are chosen. This is probably because						
a you were sitting near the teacher when the librarian asked for someone	☐	☐	☐	☐	☐	a
b you always work hard and carefully in maths	☐	☐	☐	☐	☐	b
c you are one of the best pupils in your maths class	☐	☐	☐	☐	☐	c
6. Suppose the teacher asked you to read aloud part of a story for the class and you had trouble doing this. It is probably because						
a you are bad at reading aloud	☐	☐	☐	☐	☐	a
b you had to read the hardest part of the story	☐	☐	☐	☐	☐	b
c you were careless about reading the story	☐	☐	☐	☐	☐	c
7. Suppose you get a maths question wrong in class. It is probably because						
a you often have trouble in maths	☐	☐	☐	☐	☐	a
b the question was hard	☐	☐	☐	☐	☐	b
c you never pay attention in maths lessons	☐	☐	☐	☐	☐	c
8. Suppose you are chosen from your school to take part in a state maths competition. This is probably because						
a you will try your best	☐	☐	☐	☐	☐	a
b you were lucky	☐	☐	☐	☐	☐	b
c you are good at Maths	☐	☐	☐	☐	☐	c

	False	Mostly False	Sometimes True Sometimes False	Mostly True	True	
9. Suppose you start a new story in reading and you find it hard to understand straight away. It is probably because						
a the teacher picks hard stories	☐	☐	☐	☐	☐	a
b you were day dreaming	☐	☐	☐	☐	☐	b
c your reading is poor	☐	☐	☐	☐	☐	c
10. Suppose your parents tell you that your reading is good. It would probably be because						
a you really work hard at reading	☐	☐	☐	☐	☐	a
b you always do well at reading	☐	☐	☐	☐	☐	b
c they are only being nice	☐	☐	☐	☐	☐	c
11. Suppose the class was asked to choose the best five people in maths. If they chose you it would be because						
a you really are one of the best at maths	☐	☐	☐	☐	☐	a
b you work hard to be good at maths	☐	☐	☐	☐	☐	b
c they like you	☐	☐	☐	☐	☐	c
12. Suppose you get a maths problem to do on the board in front of the class and you do it wrong. This is probably because						
a you are unlucky to be asked the hardest problem	☐	☐	☐	☐	☐	a
b you always have trouble solving problems	☐	☐	☐	☐	☐	b
c you did it too quickly and made a silly mistake	☐	☐	☐	☐	☐	c
13. Suppose your teacher says you are doing badly in <u>reading</u> work. It would probably be because						
a you are lazy in reading	☐	☐	☐	☐	☐	a
b the teacher doesn't like you	☐	☐	☐	☐	☐	b
c you always do badly in reading	☐	☐	☐	☐	☐	c
14. Suppose you are chosen to read out a story to all the parents at a special assembly. It would probably be because						
a no one else wanted to do it	☐	☐	☐	☐	☐	a
b you are a good reader	☐	☐	☐	☐	☐	b
c you have been working hard on your reading all year	☐	☐	☐	☐	☐	c
15. Suppose the teacher awarded a gold star for today's reading work and you got it. It would probably be because						
a you earned it by working hard	☐	☐	☐	☐	☐	a
b you were lucky	☐	☐	☐	☐	☐	b
c your reading is good	☐	☐	☐	☐	☐	c
16. Suppose the teacher shows you a new way of doing something in maths and you get it wrong. This is probably because						
a you should pay more attention	☐	☐	☐	☐	☐	a
b the teacher explains things badly	☐	☐	☐	☐	☐	b
c anything in maths is hard for you	☐	☐	☐	☐	☐	c

	False	Mostly False	Sometimes True Sometimes False	Mostly True	True	
17. Suppose that the teacher asked people in your class to try out to read a poem on a TV show but did NOT ask you. It would probably be because						
a your reading is not good enough	☐	☐	☐	☐	☐	a
b you decided to play instead of trying to get the poem ready	☐	☐	☐	☐	☐	b
c the teacher forgot to ask you	☐	☐	☐	☐	☐	c
18. Suppose you read a story well in front of your class. It would probably be because						
a you are good at reading	☐	☐	☐	☐	☐	a
b the story was an easy one	☐	☐	☐	☐	☐	b
c you made a special effort to read it	☐	☐	☐	☐	☐	c
19. Suppose the teacher tells you not to help a friend with their maths. This would probably be because						
a you should work harder on your own maths	☐	☐	☐	☐	☐	a
b you make a lot of mistakes in maths yourself	☐	☐	☐	☐	☐	b
c it is unfair	☐	☐	☐	☐	☐	c
20. Suppose the teacher asks you to collect and count the money for an excursion trip. It would probably be because						
a it is your turn to collect money this time	☐	☐	☐	☐	☐	a
b you always try hard in maths classes	☐	☐	☐	☐	☐	b
c you are good at maths and will collect the right money	☐	☐	☐	☐	☐	c
21. Suppose you did really well on a reading test. It is probably because						
a you were lucky	☐	☐	☐	☐	☐	a
b you tried very hard	☐	☐	☐	☐	☐	b
c you always do well in reading tests	☐	☐	☐	☐	☐	c
22. Suppose you find it hard to understand a story you are reading. It is probably because						
a you need to try harder at reading	☐	☐	☐	☐	☐	a
b you are a poor reader	☐	☐	☐	☐	☐	b
c the story is boring	☐	☐	☐	☐	☐	c
23. Suppose you did badly in a maths test. This is probably because						
a you always do badly in maths tests	☐	☐	☐	☐	☐	a
b you spend too little time studying maths	☐	☐	☐	☐	☐	b
c the test was hard for everyone	☐	☐	☐	☐	☐	c
24. Suppose the teacher chooses you to do a special problem in maths. It would probably be because						
a you know more maths than most children	☐	☐	☐	☐	☐	a
b you would work harder on it than your class mates	☐	☐	☐	☐	☐	b
c nobody else wanted to do it	☐	☐	☐	☐	☐	c

SELF DESCRIPTION QUESTIONNAIRE

Name.....Boy.....Girl.....Grade/Year.....

Age.....School.....Teacher.....

This is a chance to look at yourself. It is not a test. There are no right answers and everyone will have different answers. Be sure that your answers show how you feel about yourself. **PLEASE DO NOT TALK ABOUT YOUR ANSWERS WITH ANYONE ELSE.** We will keep your answers private and not show them to anyone.

When you are ready to begin, please read each sentence and decide your answer. (You may read quietly to yourself as I read aloud.) There are five possible answers for each question — "True", "False", and three answers in between. There are five boxes next to each sentence, one for each of the answers. The answers are written at the top of the boxes. Choose your answer to a sentence and put a tick (✓) in the box under the answer you choose. **DO NOT** say your answer out loud or talk about it with anyone else.

Before you start there are three examples below. Somebody named Bob has already answered two of these sentences to show you how to do it. In the third one you must choose your own answer and put in your own tick (✓).

	FALSE	MOSTLY FALSE	SOMETIMES FALSE, SOMETIMES TRUE	MOSTLY TRUE	TRUE	
EXAMPLES						
1. I like to read comic books.....	1 ☐	☐	☐	☐	☑	1
2. In general, I am neat and tidy.....	2 ☐	☐	☑	☐	☐	2
3. I like to watch T.V.	3 ☐	☐	☐	☐	☐	3

(Bob put a tick in the box under the answer "TRUE". This means that he really likes to read comic books. If Bob did not like to read comic books very much, he would have answered "FALSE" or "MOSTLY FALSE".)

(Bob answered "SOMETIMES FALSE, SOMETIMES TRUE" because he is not very neat, but he is not very messy either.)

(For this sentence you have to choose the answer that is best for you. First you must decide if the sentence is "TRUE" or "FALSE" or somewhere in between. If you really like to watch T.V. a lot you would answer "TRUE" by putting a tick in the last box. If you hate watching T.V. you would answer "FALSE" by putting a tick in the first box. If your answer is somewhere in between then you would choose one of the other three boxes.)

If you want to change an answer you have marked you should cross out the tick and put a new tick in another box on the same line. For all the sentences be sure that your tick is on the same line as the sentence you are answering. You should have one answer and only one answer for each sentence. Do not leave out any of the sentences.

If you have any questions put up your hand. Turn over the page and begin. Once you have started **PLEASE DO NOT TALK.**

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The University of Sydney
, 1981

		FALSE	MOSTLY FALSE	SOME-TIMES FALSE, SOME-TIMES TRUE	MOSTLY TRUE	TRUE	
1. I am good looking	1	☐	☐	☐	☐	☐	1
2. I'm good at all SCHOOL SUBJECTS	2	☐	☐	☐	☐	☐	2
3. I can run fast	3	☐	☐	☐	☐	☐	3
4. I get good marks in READING	4	☐	☐	☐	☐	☐	4
5. My parents understand me	5	☐	☐	☐	☐	☐	5
6. I hate MATHEMATICS	6	☐	☐	☐	☐	☐	6
7. I have lots of friends	7	☐	☐	☐	☐	☐	7
8. I like the way I look	8	☐	☐	☐	☐	☐	8
9. I enjoy doing work in all SCHOOL SUBJECTS	9	☐	☐	☐	☐	☐	9
10. I like to run and play hard	10	☐	☐	☐	☐	☐	10
11. I like READING	11	☐	☐	☐	☐	☐	11
12. My parents are usually unhappy or disappointed with what I do	12	☐	☐	☐	☐	☐	12
13. Work in MATHEMATICS is easy for me	13	☐	☐	☐	☐	☐	13
14. I make friends easily	14	☐	☐	☐	☐	☐	14
15. I have a pleasant looking face	15	☐	☐	☐	☐	☐	15
16. I get good marks in all SCHOOL SUBJECTS	16	☐	☐	☐	☐	☐	16
17. I hate sports and games	17	☐	☐	☐	☐	☐	17
18. I'm good at READING	18	☐	☐	☐	☐	☐	18
19. I like my parents	19	☐	☐	☐	☐	☐	19
20. I look forward to MATHEMATICS	20	☐	☐	☐	☐	☐	20
21. Most kids have more friends than I do	21	☐	☐	☐	☐	☐	21
22. I am a nice looking person	22	☐	☐	☐	☐	☐	22
23. I hate all SCHOOL SUBJECTS	23	☐	☐	☐	☐	☐	23
24. I enjoy sports and games	24	☐	☐	☐	☐	☐	24
25. I am interested in READING	25	☐	☐	☐	☐	☐	25
26. My parents like me	26	☐	☐	☐	☐	☐	26

		FALSE	MOSTLY FALSE	SOME-TIMES FALSE, SOME-TIMES TRUE	MOSTLY TRUE	TRUE	
53.	Overall I have a lot to be proud of	53					53
54.	I'm better looking than most of my friends	54					54
55.	I look forward to all SCHOOL SUBJECTS	55					55
56.	I am a good athlete	56					56
57.	I look forward to READING	57					57
58.	I get along well with my parents	58					58
59.	I'm good at MATHEMATICS	59					59
60.	I am popular with kids of my own age	60					60
61.	I can't do anything right	61					61
62.	I have nice features like nose, and eyes, and hair	62					62
63.	Work in all SCHOOL SUBJECTS is easy for me	63					63
64.	I'm good at throwing a ball	64					64
65.	I hate READING	65					65
66.	My parents and I have a lot of fun together	66					66
67.	I can do things as well as most other people	67					67
68.	I enjoy doing work in MATHEMATICS	68					68
69.	Most other kids like me	69					69
70.	Other people think I am a good person	70					70
71.	I like all SCHOOL SUBJECTS	71					71
72.	A lot of things about me are good	72					72
73.	I learn things quickly in READING	73					73
74.	I'm as good as most other people	74					74
75.	I am dumb at MATHEMATICS	75					75
76.	When I do something, I do it well	76					76